QM 351-Chapter 2
E-Commerce Market Mechanisms

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Learning Objectives

• Define e-marketplaces and list their components
• List the major types of electronic markets and describe their features
• Define supply chains and value chains and understand their roles
• Describe the role of intermediaries in EC
• Discuss competition, quality, and liquidity issues in e-marketplaces
• Describe electronic catalogs, shopping carts, and search engines
Learning Objectives (cont.)

• Describe the various types of auctions and list their characteristics
• Discuss the benefits, limitations, and impacts of auctions
• Describe bartering (exchange) and negotiating online
• Describe the impact of e-marketplaces on organizations
• Define m-commerce and explain its role as a market mechanism
How Raffles Hotel is Conducting E-Commerce/ The Problem

The company’s success depends on its ability to attract customers to its hotels and facilities and on its ability to contain costs
Raffles Hotel /Class discussion

- Need to read the chapter at home (chapter 2, p. ???)
- Answer all the questions
2.1. Electronic marketplaces
Electronic Marketplaces

• Markets facilitate exchange of
  – Information, Goods, Services, Payments

• Markets create economic value for
  – Buyers: have stable long-term relationships with large firms
  – Sellers: competitive pricing among alternative buyers
  – Market intermediaries
  – Society at large (capabilities of consumers to sell/buy from home)

• Three main functions of markets
  – Matching buyers and sellers needs
  – Facilitating the exchange of information, goods, services, catalogue, purchase and payments associated with market transactions
  – Providing institutional infrastructure (e.g. contract law, intellectual property protection)
E-marketplace B2B

- Online market place based on internet technology where multiple buyers can purchase from multiple sellers without having to create point-to-point connections to each and can potentially find new customers
- Are industry owned- specific to some industries
- Prices are established through online, negotiation and auctions
- May use also fixed price
- Two types: sale direct and indirect goods
- Direct and indirect goods (e.g. steel)
Marketspace Components

Customers (buyers):
  - Web surfers
  - Organizations

• Sellers
  - Hundreds of thousands of storefronts are on the Web
  - Advertising and offering millions of Web sites

• Products: Two types
  - Physical products
  - Digital products

• Infrastructure
  - Hardware
  - Software
  - Networks
  - Data storage
Marketspace Components (cont.)

• **Front-end business processes** include
  – Seller’s portal
  – Electronic catalogs
  – Shopping cart
  – Search engine
  – Payment gateway

• **Back-end activities** are related to
  – Order aggregation and fulfillment (see supply chain)
  – Inventory management
  – Purchasing from suppliers
  – Payment processing
  – Packaging and delivery

• **Intermediary**
  – A third party that operates between sellers and buyers

• **Other business partners**
  – Collaborate on the Internet, mostly along the supply chain
  – E.g. banks & logistic partners

• **Support services** such as
  – Security (issuing certification, trust services, digital signature)
  – Knowledge providers (e.g. R&D)
2.2. Types of Electronic marketplaces
Electronic storefronts and Electronic malls

• 1- Electronic storefronts:
  – A single company’s Web site where products and services are sold
  – E.g. walmart web site

• Mechanisms of **e-storefronts** for conducting sales
  – Electronic catalogs
  – Search engine that helps find products in the catalogue
  – Electronic cart for holding items until check-out
  – Etc…

• 2- Electronic malls (e-malls)
  – An online shopping center where many stores are located
Electronic storefronts and Electronic malls

Types of stores and malls

- General stores/malls—large marketspaces that sell all types of products
- Public portals
- Specialized stores/malls—sell only one or a few types of products;
- Regional vs. global stores;
- Pure online organizations vs. click-and-mortar stores (see more in chapter 3)
Private e-marketplaces & Public e-marketplaces

3- Marketplaces

- Online market, usually B2B, in which buyers and sellers negotiate
Three types Of Marketplaces

Private e-marketplaces
- Are online markets owned by a single company either sell side or buy side.
- **Sell-side**—company sells either standard or customized products to qualified companies
- **Buy-side marketplaces**:—company makes purchases from invited suppliers

Public e-marketplaces
- B2B markets, usually owned and/or managed by an independent third party, that include many sellers and many buyers (exchanges)

Consortia
- An e-marketplace that deals with suppliers and buyers in a single industry (e.g. steel or wood)
- **Vertical** consortia are confined to one industry
- **Horizontal** allow different industries trade there
4- Information portal

• Definition
  – A personalized Single point of access through a Web browser to business information located inside (and marginally from outside) an organization

• There are several portals
  – Publishing portals
  – Commercial portals
  – Personal portals
  – Corporate portals
  – Mobile portals (used on mobile devices)
2.3. Supply chain and value chain
Supply Chains and Value chain

• The flow of materials, information, money, and services from raw material suppliers through factories and warehouses to the end customers
• Includes organizations and processes that create and deliver the following to the end customers:
  – Products (raw material)
  – Information (demand & supply)
  – Services (payment, orders)
• Involves activities that take place during the entire product life cycle
• Includes also
  – Movement of information and money and procedures that support the movement of a product or a service
  – The organizations and individuals involved
This figure illustrates the major entities in the supply chain and the flow of information upstream and downstream to coordinate the activities involved in buying, making, and moving a product. The wide arrows show the flow of materials between supply chain members, and the dotted line and arrows show the flow of information. Suppliers transform raw materials into intermediate products or components, and then manufacturers turn them into finished products. The products are shipped to distribution centers and from there to retailers and customers.
The Supply Chain partners

Changes in the Supply Chain

Electronic Hub

Supplier

Consultant

Logistics

Sub-supplier

Technology

Other services

Logistics, delivery

Buyer

Support

Manufacturers

Bank payment
A Simple Supply Chain

The Generic Process

Upstream

2nd Tier Suppliers

2nd Tier Suppliers

2nd Tier Suppliers

1st Tier Suppliers

Internal

Assembly/Manufacturing and Packaging

Flow of information

Physical flow of material

Downstream

Distribution Centers

Retailers

Customers

Toys Manufacturer Process

Oil Refinery

Plastic

Sheet Metal

Components Manufacturer

Shipping

Toy Assembler/Manufacturer

Toy Packaging

Shipping

Distribution

Retailers

Customers

Pulp Company

Paper Company

Box Makers, Printers

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Three Supply Chain Components

• **Upstream supply chain**—includes the activities of suppliers (manufacturers and/or assemblers) and their suppliers

• **Internal supply chain**—includes all in-house processes used in transforming the inputs received from the suppliers into the organization’s outputs

• **Downstream supply chain**—includes all the activities involved in delivering the product to the final customers
Types of Supply Chains

• Integrated make-to-stock
  – Model that enables to track customer demand so that the production process can restock the inventory of finished good (e.g. Starbucks serves individuals, companies, airlines, supermarkets, etc.)

• Continuous replenishment
  – Model that replenishes the inventory once it goes below a certain level
  – Require close collaboration with supplier/intermediaries
  – Need to plan replenishment distributor channel (e.g. McKesson distributor)
Types of Supply Chains (cont’)

• **Build-to-order**
  – Model in which a manufacturer begins assembly of the customer’s order almost immediately upon receipt of the order
  – Need careful management of component inventories
  – The product is manufactured by only one company

• **Channel assembly**
  – Similar to build to order, but slightly different
  – Model in which product is assembled as it moves through the distribution channel
  – Product is manufactured through strategic alliance with third party logistics firms
Value Chain & Value System (See QM 240)

Remark: Each company adds a value to the supply chain called *value chain* or *value system*

**Value chain**: the series of activities (primary & support) *a company* performs to achieve its goal(s) at various stages of the production process;
- Each activity adds value to the company’s product or service, contributes to profit, and enhances *competitive position* in the market

**Value system**: A set of value chains *in an entire industry*, including the value chains of tiers of suppliers, distribution channels, and customers

**Value chain** and the **supply chain** concepts are interrelated
- Value chain shows the activities performed by an organization and the values added by each
- The supply chain shows flows of materials, money, and information that support the execution of these activities
• Ecommerce increases the value added by:
  – Introducing new business models
  – Automating business processes

• Ecommerce smoothes the supply chain by:
  – Reducing problems in the flows of material, money, and information

• Ecommerce facilitates the restructuring of business activities and supply chains, and reduces costs to do so
2.4. Intermediation and syndication in e-commerce
Intermediation in E-Commerce

• They provide value-added activities and services to buyers and sellers
• Example of Intermediation in E-Commerce include wholesalers, retailers, infomediaries
• Infomediary: electronic intermediary that controls information flow in cyberspace, often aggregating information and selling it to others
Roles of intermediaries

• They present both limitation (which are?) and advantages (which are?)

• Class discussion (see the book chapter 2)
E-Distributors on B2B

• **E-distributor**
  – An e-commerce intermediary that connects manufacturers (suppliers) with buyers by aggregating the catalogs of many suppliers in one place—the intermediary’s Web site

• **E-distributors also provide support services**
  – Aggregate buyers’ and or sellers’ orders
  – Payments
  – Security
  – Deliveries
Disintermediation & Re-intermediation

- **Disintermediation**—elimination of intermediaries between sellers and buyers
- Provide relevant information about demand, supply, consulting, assistance

The benefits of disintermediation to the consumer.

- **Manufacturer** → **Distributor** → **Retailer** → **Customer**
  - Cost/Sweater: $48.50
- **Manufacturer** → **Retailer** → **Customer**
  - Cost/Sweater: $40.34
- **Manufacturer** → **Customer**
  - Cost/Sweater: $20.45
Disintermediation & Re-intermediation (cont’)

• **Re-intermediation**—establishment of new intermediary roles for traditional intermediaries that were disintermediated

![Diagram showing different business models involving manufacturers, distributors, retailers, and customers with cost differences: $48.50, $40.34, $20.45.]

**Which business model?**
Syndication

- **Syndication**—the sale of the same good (e.g., digital content) to many customers, who then integrate it with other offerings and resell it or give it away free
- Other syndicated services: Logistics, security, system integration tools
2.5. Issues in e-markets: Competition, liquidity, quality, and success factors
Assess Threats Using Porter’s Forces Model (see QM 240)

There are five (05) main forces or threats.
Liquidity: The need for a critical mass of buyers and sellers

• **Liquidity**
  – The need for a *critical mass* of buyers and sellers
  – The fixed cost of deploying EC can be very high
  – If there is a large number of buyers, sellers can make money

• **Early liquidity**
  – It consist to achieve a critical mass of buyers and sellers as fast as possible, before the market-maker’s cash disappears
Quality Uncertainty & Quality Assurance

• Quality uncertainty
  – Refer to the uncertainty of online buyers about the quality of products that they have never seen, especially from an unknown vendor

• How to decrease uncertainty?
  – Give me actions
  – Class discussion
E-Market Success Factors

• Class discussion: What are the E-Market Success Factors (otherwise, unexpected quiz, read the chapter before coming to my course)?
2.6. Electronic Catalogs & other market mechanism
Electronic Catalogs

• Electronic catalogs
  – The presentation of product information in an electronic form; the backbone of most e-selling sites
  – Consist of a product database, directory and search capabilities, and a presentation functions

• Objectives of catalogs
  – For merchants—advertise and promote
  – For customers—source of information and price comparisons
Classifications of Electronic Catalogs

Three dimensions

• Static vs. dynamic catalogue
• Standard vs. customized catalogue,
• Integrated with business processes; e.g. order taking and fulfillment

Example

– Any customer order is transformed to a computerized inventory check
Customized Catalogs

• Assembled specifically for:
  – A company
  – An individual shopper

• Customization systems can:
  – Create branded, value-added capabilities
  – Allows user to compose order
  – May include individualized prices, products, and display formats
  – Automatically identify the characteristics of customers based on the transaction records
Electronic Catalogs at Boise Cascade

- Boise Cascade Office Products--$3-billion office products wholesaler of over 200,000 different items
  - They had a 900-page paper catalog that was mailed once each year; minicatalogs tailored to customers’ individual needs
  - The company placed its catalogs online in 1996 (boiseoffice.com)
- Sales through the Web site:
  - 1997—20 percent
  - 1999—30 percent
  - 2004—80 percent (expected)
- Production of a single paper catalog took 6 weeks/production of Web catalog takes 1 week
- Major advantage of customized catalogs is pricing
- Electronic orders cost 55 percent less to process than paper-based orders
Boise Cascade (cont.)

EC Application Case 2.2

All existing catalog pages, primarily in Quark files, have been converted into ASCII format and are stored in a relational database.

Items are updated once, through the Publisher’s Workbench, and pushed out to electronic catalogs.

Existing catalog pages

Publisher’s Workbench

Page Layout

Print Gateway

Existing Systems

Page Conversion

Information for print and Web catalogs is obtained from the database through gateways.

Database

Custom Data Bridges

Web Gateway

Web Catalog

Additional information stored in legacy systems, such as pricing for individual buyers, is dynamically retrieved.
Advantages of e-catalog and sales volume evolution

Online catalog benefits
• Production of a single paper catalog took 6 weeks/production of Web catalog takes 1 week
• Major advantage of customized catalogs is pricing
• Electronic orders cost 55% less to process than paper-based orders

Sales through the Web site
• See chapter on the book
Case study at Boise Cascade (cont.)

EC Application Case 2.2

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Information for print and Web catalogs is obtained from the database through gateways.

Additional information stored in legacy systems, such as pricing for individual buyers, is dynamically retrieved.
Search Engines, Intelligent Agents and Shopping Carts

• **Search engine**
  – Computer program that can access a database of Internet resources, search for specific information or keywords, and report the results

• **Software (intelligent) agent**
  – Software that can perform routine tasks that require intelligence

• **Electronic shopping cart**
  – Order-processing technology that allows customers to accumulate items they wish to buy while they continue to shop
2.7. E-Auction
Auction and e-auction

• Auction: a market mechanism by which a seller places an offer to sell a product and buyers make bids sequentially and competitively until a final price is reached

• Auctions deal with products and services for which conventional marketing channels are ineffective or inefficient

• Electronic auctions (e-auctions): auctions conducted online
Traditional auction vs. E-auction

Limitations of Traditional Auctions

• Traditional auctions are generally a rapid process
• It may be difficult for sellers to move goods to the auction site
• Commissions are fairly high

E-auction

• Host sites on the Internet serve as brokers offering:
  – Services for sellers to post their goods for sale
  – Allowing buyers to bid on those items
• Many sites have certain etiquette rules that must be adhered to in order to conduct fair business
Example of auctions

Major online auctions offer products such as:

- Consumers products, electronic parts, vacation package, airlines tickets,
- **Bidfind.com** auction aggregator hundred of sites
- Other e-auctions: Gaz, electricity
- Most traditional processes are converted in e-auction (e.g. Raffle Hotel)

- **Question:** find out the best (largest) Arab auction site
Dynamic pricing and types of auctions

Dynamic pricing

• Prices that change based on supply and demand relationships at any given time

Four major categories of dynamic pricing

• One buyer, one seller:
• One seller, many potential buyers:
• One buyer, many potential sellers
• Many sellers, many buyers
Dynamic Pricing (cont.)

One buyer, one seller uses

• Negotiation
• Bargaining
• Bartering
• **Price will be determined by:**
  – Each party’s bargaining power
  – Supply and demand in the item’s market
  – Possibly business environment factors
Dynamic Pricing (cont.)

One seller, many potential buyers

- **Forward auction**: an auction in which a seller entertains bids from buyers
- **English auction**: an auction in which buyers bid on an item in sequence and the price increases with time
- **Yankee auction**: an auction of multiple identical items in which bidders can bid for any number of the items offered, and the highest bid wins
Dynamic Pricing (cont.)

- **Dutch auction**: auction of multiple identical items, with prices starting at a very high level and declining as the auction time passes.

- **Free-fall** (declining price) **auction**: a variation of the Dutch auction in which only one item is auctioned at a time; the price starts at a very high level and declines at fixed time intervals, the winning bid is the lowest one when the time expires.
Dynamic Pricing (cont.)

One buyer, many potential sellers

• **1-Reverse auction**
  – Is called bidding
  – Is an auction in which the buyer places an item for bid (tender) on a Request For Quote (RFQ) system, potential suppliers bid on the job, with price reducing sequentially, and the lowest bid wins; primarily a B2B or G2B mechanism
  – Reverse auctions are only B2B or G2B (what is), no (C2B)

• **2- Name your price,**
  – Is a C2B model although business use it too
  – E.g. priceline.com examines its database to find out the lowest vendor prices and try to match supply against requests
Dynamic Pricing (cont.)

Many sellers, many buyers

• Double Auction: Buyers and their bidding prices and sellers and their asking prices are matched, considering the quantities on both sides
Limitations of Electronic Auctions

- Class discussion: What are benefits/limitations of e-auctions for the three categories: sellers, buyers, and e-auctioneers? see chapter 2. see p. 72

- Case study: Reverse Mortgage Auctions in Singapore (p. 74)
2.8. Bartering and negotiating online
Bartering Online

Bartering “تُبَّعُ”

• An exchange of goods and services
• It is done in a bartering exchange, a marketplace in which an intermediary arranges the transaction
• Benefit: cost less than traditional (up to 30 in traditional way while it is 5 to 10 % in bartering system)

Bartering exchanges

• Tell the bartering exchange what you want to offer
• It will assess value of your product or service in ”points”
• Use “points” to buy what you need
• Bartering exchange: a marketplace in which an intermediary arranges barter transactions

Conductions for success

• Class discussion (what???)
Online Negotiating

- **Online negotiation**
  - Electronic negotiation, usually done by software (intelligent) agents that perform searches and comparisons; improves bundling and customization of products and services
  - Similar to auction but different ([see below](#))

- Online negotiation between sellers and buyers deal with
  - Expensive items like cars and real estate
  - Non-pricing terms like payment method and credit (excluded from auctions)

- **Three factors that facilitate negotiated prices**
  - Intelligent agents that perform searches and comparisons
  - Computer technology that facilitates negotiation process
  - Products and services that are bundled and customized
2.9. Mobile Commerce
Mobile Commerce

**Mobile computing**

- Permit access digital information on the Internet from any location based on mobile devices (cell phones, PDAs, and other wireless computing devices); used to be accessed only via desktop computer

**M-commerce**

- The use of the Internet for purchasing goods and services and also for transmitting messages using wireless mobile devices

**M-business**

- Broadest definition of m-commerce, in which e-business is conducted in a wireless environment
The Promise of M-Commerce

• Mobility significantly changes the manner in which people and customers:
  – Interact
  – Communicate
  – Collaborate

• Mobile applications are expected to change the way we:
  – Live
  – Play
  – Do business

Class discussion: How mobile devices will change our life
The Promise of M-Commerce (cont.)

- The PC-based Internet culture may change to one based on mobile devices
- M-commerce creates new business models for EC, notably location-based applications (see more on chapter 8)

- An example of the spread of m-commerce is DoCoMo’s i-Mode (in Japan)- see applications of I-Mode (chapter 2)
Impacts of E-Markets on Business Processes & Organizations

Impacts of e-markets on B2C direct marketing:

- Product promotion
- New sales channel
- Direct savings
- Reduced cycle time
- Customer service
- Brand or corporate image
- Customization
- Advertising
- Ordering systems
- Market operations
End Chapter 2